

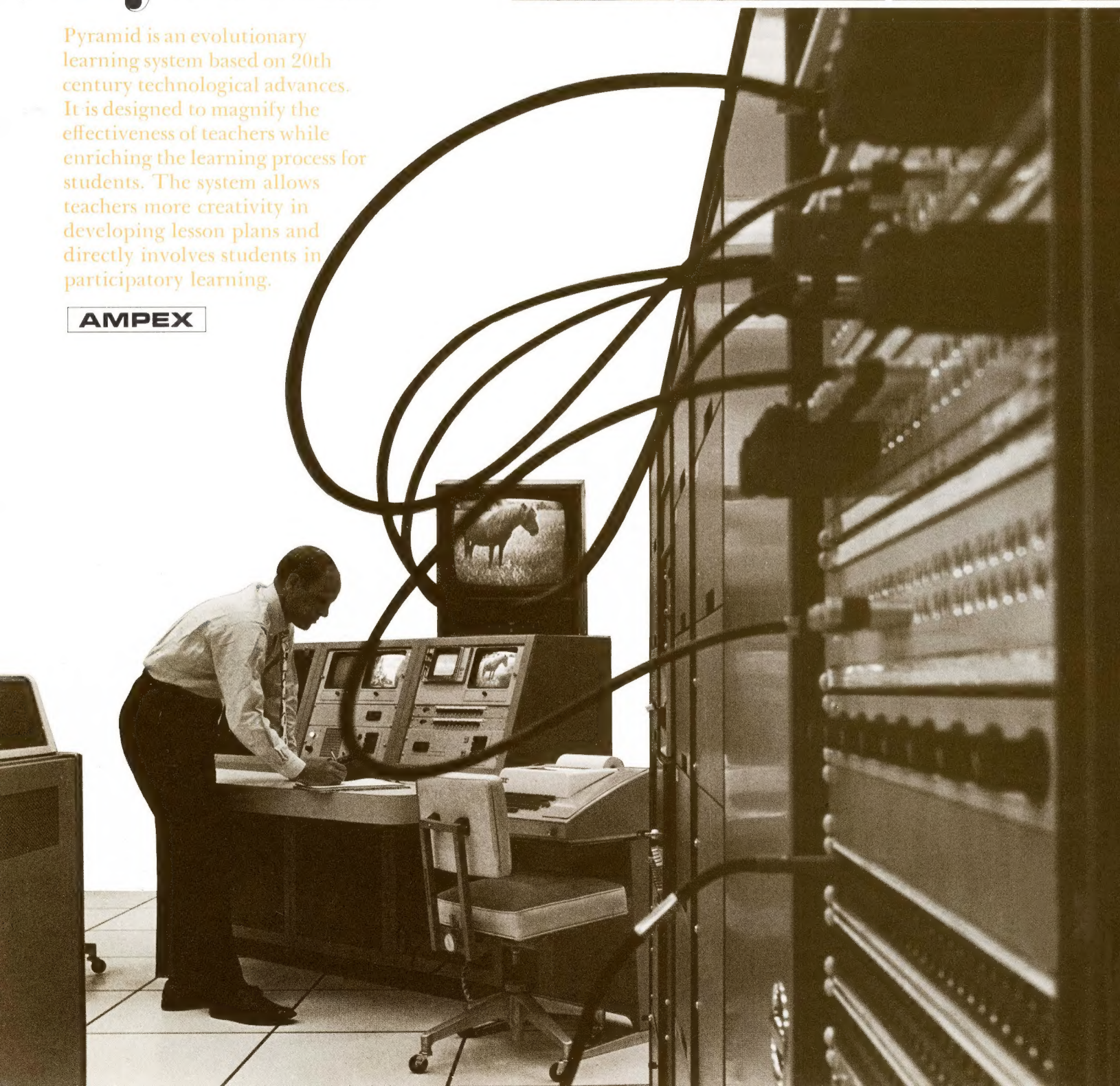
The Pyramid System



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Pyramid is an evolutionary learning system based on 20th century technological advances. It is designed to magnify the effectiveness of teachers while enriching the learning process for students. The system allows teachers more creativity in developing lesson plans and directly involves students in participatory learning.

AMPEX



"With the computer assuming the major responsibility for information dissemination, the teacher's role is likely to revolve around human relations, instructional strategies, construction of learning materials, and learning research . . . a more rewarding and professional role for the teacher."

—D. N. Hansen and W. L. Harvey

IMPACT OF CAI ON CLASSROOM TEACHERS
Educational Technology, February, 1970

THE CONVOY PRINCIPLE

In the recent past, teachers have often been required to move the class forward at the speed of the slowest students. The PYRAMID system helps to eliminate this burden by allowing more perceptive students to advance at their own learning rate while reinforcing slower students in the basic requirements of any lesson plan. The system enables teachers to concentrate their efforts of personal counseling on specific students who may need it the most.

Teachers can program the PYRAMID system with additional learning challenges for advanced students while concentrating extra effort in the basics of any topic for the remainder of the class. In effect, teacher contributions are augmented by pre-selected information that serves as a private tutor or teaching assistant for each student on a one-to-one basis.

REINFORCEMENT THEORY

Proponents of the reinforcement theory cite numerous studies indicating that learning is greatly enhanced when a student quickly receives teacher approval for properly responding to a question or challenge. This is often impossible to achieve in a normal classroom situation when many students simultaneously seek teacher attention and approval. Yet, the time lapse between the student response and teacher reward are vital in terms of student reinforcement and encouragement.

The PYRAMID system quickly reinforces and rewards students each time they answer correctly or move ahead on the lesson plan. For students who answer questions incorrectly, or respond too slowly, the system can be programmed to immediately fall back into a review mode or branch out to present the basic facts in a more simplified

version. This capability eliminates negative peer group pressure and saves many slower students from public embarrassment.

Investigators of learning processes emphasize that learning is often most effective when a complex task is broken into many small steps, each of which is constantly reinforced many times as the learning occurs. Teachers can preprogram PYRAMID to carry students through as many simplified steps as they wish before presenting the final complex equation. Additionally, teachers can program "side trips" for advanced students through more complex routes or by related studies while using review and restatement methods for slower students.

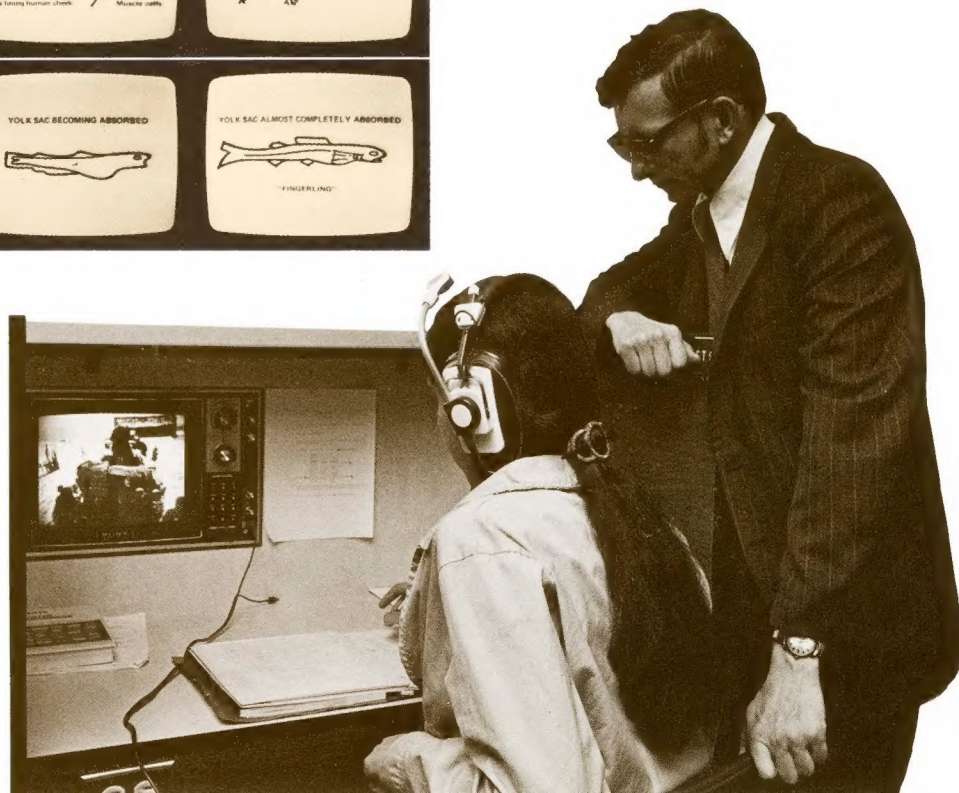
"The slow student can proceed at his own pace, knowing that he has an excellent chance of getting grades comparable to the fast student . . . and he can get more individual attention when he does get into difficulty. The fast student is not held back by the class . . . may go on to other subjects or other projects with the released time, as the teacher may decide."

—Michael Scriven

THE CASE FOR AND USE OF PROGRAMMED TEXTS
PROGRAMMED INSTRUCTION: BOLD NEW VENTURE
Edited by Allen D. Calvin
Indiana University Press, 1969



Examples of lesson material presentation on a PYRAMID system, photographed directly from the television screen in a student carrel.



"Computer technology, perhaps more than any other means visible at present, holds promise that we can deal with the educational problems of today and tomorrow in significant fashion."

—Wayne H. Holtzman

COMPUTER-ASSISTED INSTRUCTION, TESTING AND GUIDANCE

Harper & Row, 1970

CREATIVE TEACHING

Among the most vexing problems faced by modern teachers is the requirement to present voluminous details of routine work while retaining class control. Student attention inevitably wanders when teachers are mandated by circumstance to repeat and reiterate. The student image of teacher as guide and helper are lessened when that symbol necessarily engages in mundane matters or exerts crowd control techniques.

The PYRAMID system helps eliminate or modify routine class lectures and holds student attention to the lesson plan which progresses at student-paced speeds. Teachers are then released for individual student analysis and coaching.



Automatic, random-access, high-speed cassette duplication of any of the system's audio programs, allows students to study the material away from the classroom or library using any convenient cassette player.

The system enables teachers to accurately localize individual student difficulties and take corrective actions.

The single most significant characteristic of the PYRAMID system is that teachers can utilize any media: print, audio, video, diagrams, drawings, photography and their own (or guest's) voice and/or visual image. The content of lesson plans can be expanded to match the creativity of teachers in any subject from art appreciation to zoology. Outside experts can be recorded in any media for presentation to students, remote sites can be visited, stop-frame photography can be featured, changes in substance or structure can be animated, complex equations can be segmented, chemical and physical reactions and actions can be demonstrated. In summary, the PYRAMID system is designed to bring out the best in imaginative teachers and responsive students.

ANATOMY OF A SYSTEM

PYRAMID is an evolutionary combination of three maturing disciplines: Learning processes, television broadcasting and computer technology. It unifies the latest advances in all three fields and provides specific advantages for students, teachers and administrators.

Students of today, who have been pre-conditioned to accept television as a medium of entertainment, can now interact with it as a medium of education. They can become directly involved through vastly broadened lesson plans with learning a variety of subjects at their own pace. Existing installations confirm that students find the system easy to operate and many look forward to classroom studies with renewed commitment.

Teachers can widen and deepen lesson plans for virtually any subject matter. The PYRAMID system allows teachers to create and program lesson plans weeks or months in advance of student need. Lesson plans can be readily updated, changed or deleted at any time by the teacher. The system monitors student progress on a daily or weekly basis and permits a much greater degree of student assistance by teachers.

Administrators can suggest increases in class size without a commensurate increase in the number of faculty members. Curriculums can be expanded, in some instances, by maximizing members. Finally, 24-hour learning centers can become a reality.

"We know here that you can't replace a teacher with a machine, but you can replace machine-like teaching."

—President Dudley Boyce,
Golden West College

SATURDAY REVIEW OF EDUCATION, MAY, 1973

"If a student being taught by instructional television can be given immediate knowledge of whether he has responded correctly, he will learn more."

—Godwin C. Chu and
Wilbur Schramm

LEARNING FROM TELEVISION

National Association of Educational Broadcasters, 1967

COMPONENTS OF SERENDIPITY

The modular architecture of the PYRAMID system, developed by Ampex Corporation, is comprised of basic elements that have earned wide scale acceptance in the fields of television broadcasting and computer technology. They can be identified by four different categories for purposes of explanation:

1. **STORAGE:** This subject of the system includes audio tape decks with unlimited add-on capability; video disk for television screen motion and play-back; digital memory banks for unlimited storage of words and numbers.
2. **INPUT:** The input device is a console with the added capability of encoding motion pictures, still photos, video tape, typewritten pages and resource material from all related media.
3. **CONTROLLER:** The computer processes commands from the editor to encode, or commands from the interactive television terminals (used by students) to retrieve and send forth the lesson plan or quiz or test or whatever the teacher has encoded. All this activity occurs in milliseconds.
4. **COMMUNICATOR:** This is comprised of a television set and interactive keyboard terminal enabling the student to "talk" to all the data in the complete memory bank (storage).

This particular configuration of elements allows teachers to program, and students to access any lesson on any subject matter at any time without interrupting or interfering with any other student, even though the same lesson plan may be under study simultaneously by other students. This is known as random access.

Another characteristic of the system is that it can be programmed to print out an analysis of student progress and test results on a daily or weekly or final exam basis. Additionally, the system allows students random access cassette reproduction for home study of audio lesson plans which is invaluable in language, music and recorded audio lectures.

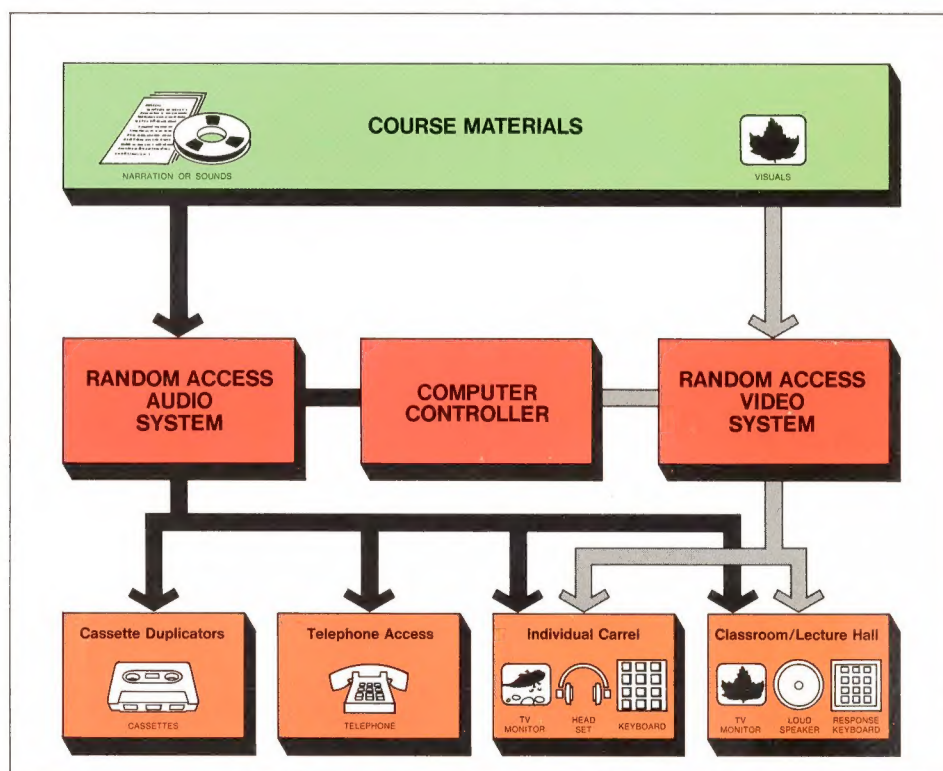
The versatility of the PYRAMID system includes calling up audio lessons from the home through touch-tone telephones and through the establishment of full interactive audio/visual centers in remote locations far from the school or university (through existing or newly laid wide-channel cable television distribution networks).



"Concrete evidence of the extent and variety of current educational uses of computers quickly dispels the notion that these uses are merely something which might occur. They are a fact now! Whether to use the computer as an educational tool is a question which was appropriate and timely a decade ago. But it is no longer. The pertinent and present question is how to provide for the optimization of computer applications to education."

—Joseph B. Margolin and Marian R. Misch

COMPUTERS IN THE CLASSROOM
Spartan Books, 1970



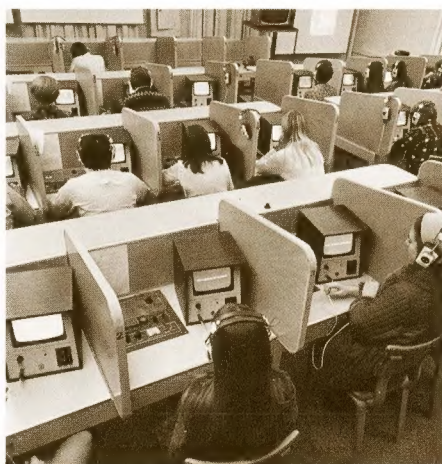
The modular expansion of the PYRAMID system allows it to grow as needed from a basic random-access audio system to the versatile video/CAI (Computer-Assisted Instruction) system illustrated in the chart.



The information-handling abilities of the Pyramid System have wide application, as exemplified by the large group instruction room at the Stanford Center for Research and Development in Teaching, School of Education, Stanford University, California. Here a specialized application of the system, incorporating keyboards throughout the lecture room and a computerized readout terminal at the lectern, makes it possible for the instructor to receive an immediate profile of responses to questions or to points made during the lecture, or to record these responses for later analysis.



Los Angeles City College, Los Angeles.
Student carrels, Pyramid System installation.



Illinois State University, Normal, Illinois.
Student carrels, Pyramid System installation.



Oak Park and River Forest High School,
Oak Park, Illinois.

For additional information concerning the PYRAMID System, contact:

AMPEX

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